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ESD



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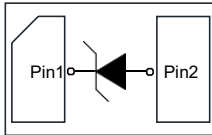


PLED

Product data sheet



DFN1610-2L



Circuit diagram

Descriptions

The ESD56201DXX-MS is a transient voltage suppressor designed to protect power interfaces. It is suitable to replace multiple discrete components in portable electronics.

The ESD56201DXX-MS is specifically designed to protect power lines.

The ESD56201DXX-MS is available in DFN1610-2L package. Standard products are Pb-free and Halogen-free.

Features

- Reverse stand-off voltage: 4.85V ~ 24V
- Surge protection according to IEC61000-4-5 see Table 4
- ESD protection according to IEC61000-4-2 ±30kV (contact and air discharge)
- Low clamping voltage
- Solid-state silicon technology

Applications

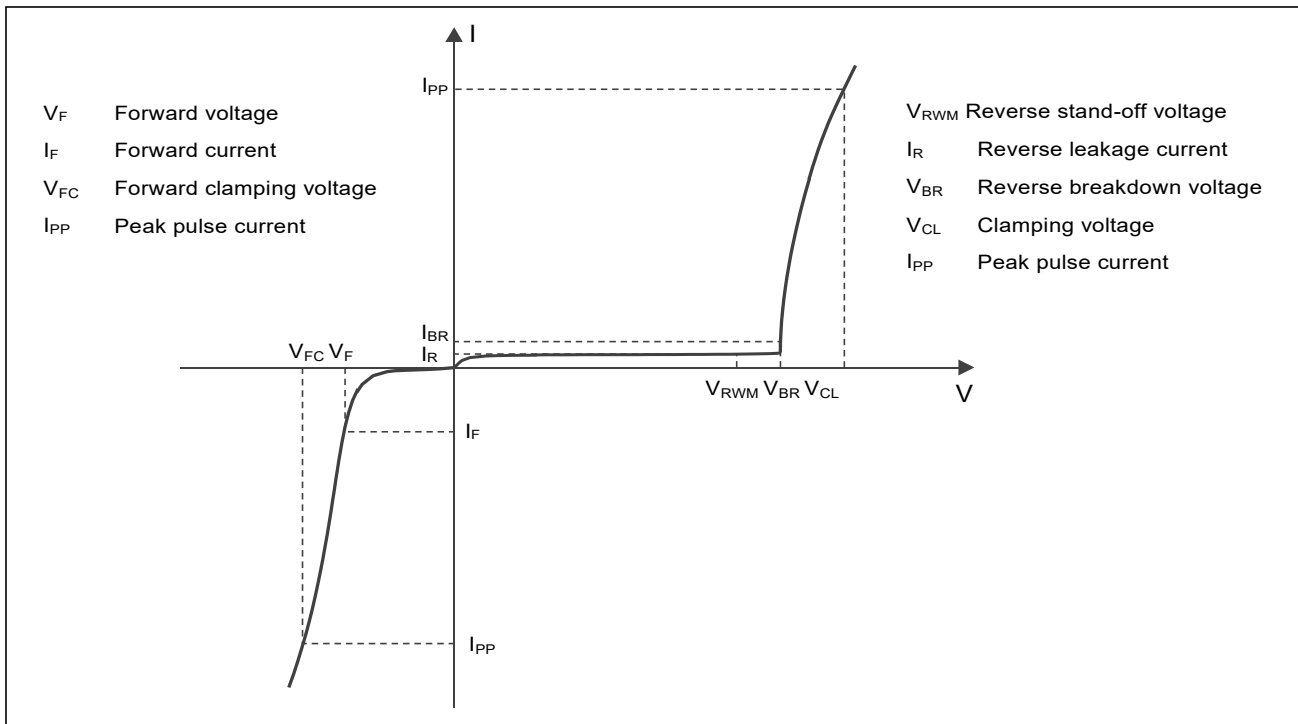
- Power supply protection
- Power management

Order information

| Device | Package | Shipping | Marking |
|----------------|------------|----------------|---------|
| ESD56201D04-MS | DFN1610-2L | 3000/Tape&Reel | D4* |
| ESD56201D05-MS | DFN1610-2L | 3000/Tape&Reel | I* |
| ESD56201D10-MS | DFN1610-2L | 3000/Tape&Reel | J* |
| ESD56201D12-MS | DFN1610-2L | 3000/Tape&Reel | K* |
| ESD56201D15-MS | DFN1610-2L | 3000/Tape&Reel | L* |
| ESD56201D18-MS | DFN1610-2L | 3000/Tape&Reel | S* |
| ESD56201D20-MS | DFN1610-2L | 3000/Tape&Reel | N* |

| Parameter | Symbol | Rating | Unit |
|---|------------------|---------|------|
| Peak pulse power (tp = 8/20μs) | P _{pk} | 1800 | W |
| ESD according to IEC61000-4-2 air discharge | V _{ESD} | ±30 | kV |
| ESD according to IEC61000-4-2 contact discharge | | ±30 | |
| Junction temperature | T _J | 125 | °C |
| Operating temperature | T _{OP} | -40~85 | °C |
| Lead temperature | T _L | 260 | °C |
| Storage temperature | T _{STG} | -55~150 | °C |

Electrical characteristics (T_A = 25°C, unless otherwise noted)



Definitions of electrical characteristics

Electrical characteristics (T_A = 25°C, unless otherwise noted)

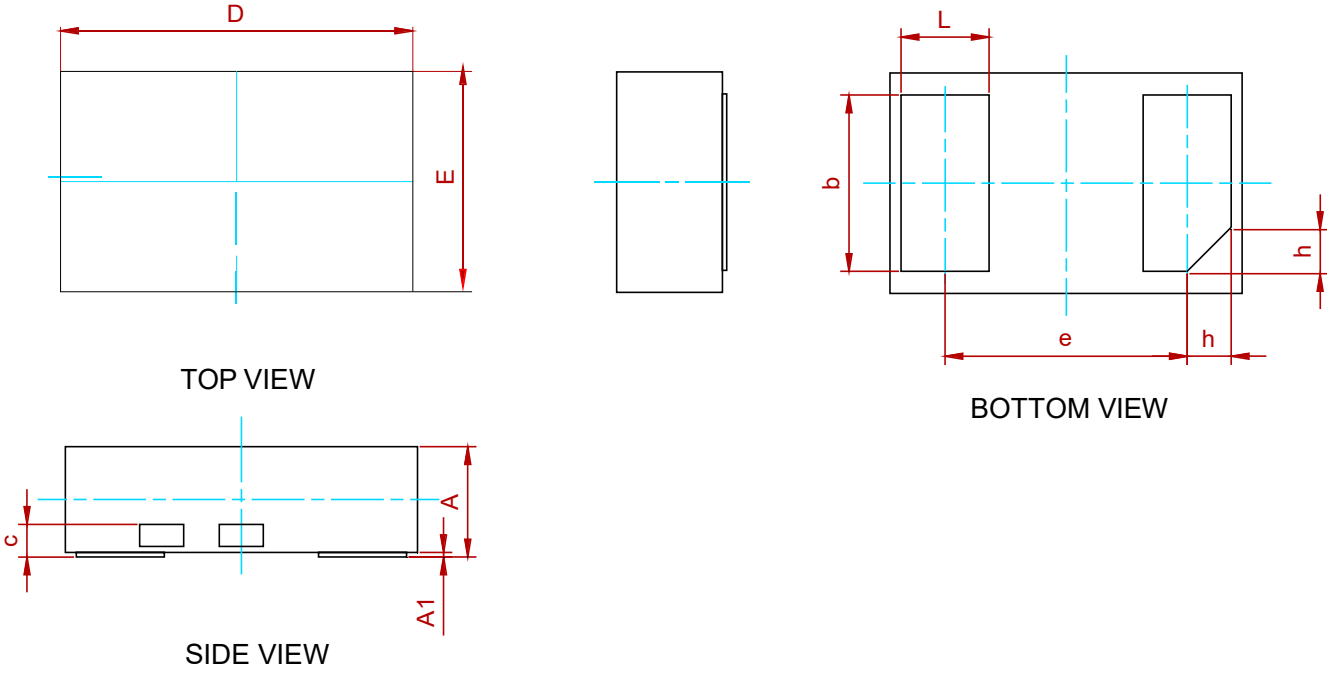
| P/N | Reverse Stand-off Voltage V _{RWM} (V) | Breakdown voltage V _{BR} (V) I _{BR} = 1mA | | | Reverse leakage current I _{RM} (μA) at V _{RWM} | | Forward voltage V _F (V) I _F = 20mA | | Junction capacitance F = 1MHz, VR=0V (pF) | |
|----------------|--|---|------|------|--|-----|--|------|---|------|
| | Max | Min | Typ | Max | Typ e | Max | Min | Max | Typ | Max |
| ESD56201D04-MS | 4.85 | 5.2 | 5.7 | 6.2 | - | 5.0 | 0.45 | 1.25 | 1100 | 1300 |
| ESD56201D05-MS | 5.0 | 6.6 | 7.1 | 7.6 | - | 2.0 | 0.45 | 1.25 | 1050 | 1250 |
| ESD56201D10-MS | 10.0 | 10.7 | 11.3 | 12.3 | - | 0.1 | 0.45 | 1.25 | 545 | 650 |
| ESD56201D12-MS | 12.0 | 12.7 | 13.7 | 14.6 | - | 0.1 | 0.45 | 1.25 | 425 | 510 |
| ESD56201D15-MS | 15.0 | 16.0 | 17.5 | 19.0 | - | 0.1 | 0.45 | 1.25 | 325 | 350 |
| ESD56201D18-MS | 18.0 | 19.2 | 21.1 | 23.0 | - | 0.1 | 0.45 | 1.25 | 270 | 300 |
| ESD56201D20-MS | 20.0 | 21.4 | 23.2 | 25.0 | - | 0.1 | 0.45 | 1.25 | 250 | 275 |

| P/N | Rated peak pulse current I _{PP} (A) ¹⁾²⁾ | Clamping voltage V _{CL} (V) at I _{PP} (A) ¹⁾²⁾ | |
|----------------|--|---|------|
| | Max. | Typ. | Max. |
| ESD56201D04-MS | 120 | 10.5 | 12.0 |
| ESD56201D05-MS | 100 | 11.0 | 13.0 |
| ESD56201D10-MS | 86 | 17.5 | 20.0 |
| ESD56201D12-MS | 75 | 19.5 | 22.0 |
| ESD56201D15-MS | 60 | 27.0 | 30.0 |
| ESD56201D18-MS | 50 | 32.0 | 35.0 |
| ESD56201D20-MS | 45 | 35.0 | 38.0 |

Notes:

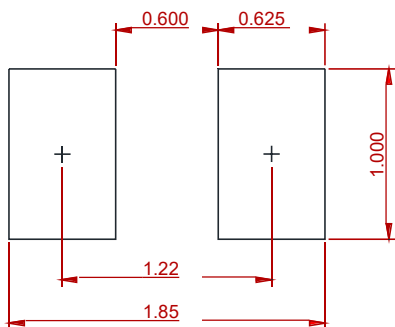
- 1 Non-repetitive current pulse, according to IEC61000-4-5. (8/20μs current waveform)
- 2 Non-repetitive current pulse, according to IEC61000-4-2.
- 3 Measured from pin 1 to pin 2.

PACKAGE MECHANICAL DATA



| Symbol | Dimensions in Millimeters | | |
|--------|---------------------------|------|------|
| | Min. | Typ. | Max. |
| A | 0.45 | 0.50 | 0.55 |
| A1 | 0.00 | 0.02 | 0.05 |
| c | 0.15 Ref. | | |
| b | 0.75 | 0.80 | 0.85 |
| L | 0.35 | 0.40 | 0.45 |
| D | 1.55 | 1.60 | 1.65 |
| E | 0.95 | 1.00 | 1.05 |
| e | 1.10 BSC | | |
| h | 0.20 Ref. | | |

Recommend PCB Layout (Unit: mm)



Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.

REEL SPECIFICATION

| P/N | PKG | QTY |
|----------------|------------|------|
| ESD56201DXX-MS | DFN1610-2L | 3000 |

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